

MOUNTAIN PINE BEETLE CONDITIONS
GRAND TETON NATIONAL PARK

Detection and Appraisal Survey
September-October 1957

The lodgepole pine stands of the Grand Teton National Park and the adjoining National Forests have a long history of outbreaks of mountain pine beetle, Dendroctonus monticolae Hopk. A recent large outbreak covered the National Park and parts of four National Forests and was known as the Targhee-Teton outbreak. A large-scale treating program was undertaken between 1947 and 1951. Altogether, over 200,000 infested trees were treated. From 1951 to 1955 the beetle population remained at a low level. In 1955 a small but serious hot spot of beetle activity was detected on the Teton National Forest. By the fall of 1956 it had become apparent to the Station entomologists that a rapid increase in mountain pine beetle activity in spots throughout the lodgepole pine forests indicated an upward trend.^{1/}

The 1956 aerial survey of Grand Teton National Park revealed a center of mountain pine beetle on the south end of Signal Mountain.^{2/} Additional ground and aerial checks also disclosed hot spots on the north shore of Two Ocean Lake and in Pacific Creek in Grand Teton National Park. Control work was undertaken June 1957 and a total of 704 trees were treated, 506 on the Signal Mountain unit and 198 in Pacific Creek.^{3/} The Two Ocean Lake infestation was not treated.

An aerial survey in the fall of 1957 detected new hot spots east of Signal Mountain and on the Snake River near the Triangle Ranch. In addition, two new centers were detected just to the east of the Two Ocean Lake infestation. New centers, as well as the areas that had been subjected to control work, were surveyed by ground crews. The Signal Mountain and East Signal Mountain areas were surveyed by the line-plot method at an intensity of 10 percent. Estimates for the rest of the infested centers were derived by a scouting type appraisal.

^{1/} Memorandum to Regional Forester, November 8, 1956.

^{2/} R. I. Washburn, Grand Teton National Park detection and appraisal survey report, Oct. 1956.

^{3/} Gale, H. Wilcox, Mountain Pine Beetle Control Project - Signal Mountain and Pacific Creek Areas 1957 (a memorandum to Chief Ranger, Grand Teton National Park.)

Signal Mountain Unit: 1,370 acres, 200 infested trees.

The Signal Mountain unit is located near the south end of Signal Mountain in sec. 25, 26, T. 45 N., R. 115 W. and in sections 29, 30, 31, T. 45 N., R. 114. The survey showed that about 88 percent of the 1956 infested trees were treated in 1957. The red top count showed that approximately 70 trees were not treated. The estimate of 200 trees attacked in 1957 represents a buildup ratio of nearly 3 to 1 assuming no outside influence. The average size of newly infested trees is 11.6 inches DBH, compared to 12.6 inches DBH for the trees infested in 1956.

East Signal Mountain Unit: 390 acres, 260 infested trees.

The East Signal Mountain unit is located in a peninsula of timber just east of Signal Mountain and west of the Snake River in sections 27, 28, 33, T. 45 N., R. 114 W. This small hot spot was detected by the aerial survey in 1957. The systematic ground survey revealed about 260 currently infested trees. It was estimated that 250 trees were killed last year which indicates a buildup ratio of 1 to 1. The average size of the infested tree is 10.6 inches DBH.

Snake River: 800 acres, 50 infested trees.

A narrow fringe of lodgepole pine on the east side of the Snake River running from a point where the new highway drops down to the river bed, northward to Triangle Ranch, contains approximately 50 infested trees. These trees appear in small groups in the gross area of about 800 acres. This area is less than a half a mile to the west of the large body of lodgepole pine of the Teton National Forest.

Pacific Creek: 200 acres, 125 infested trees.

The infestation on Pacific Creek is located on parts of sec. 6, T. 45 N., R. 113 W. and sec. 1, T. 45 N., R. 114 W. Control work was conducted in the area this summer and 198 trees were treated over an area of about 500 acres. The fall appraisal shows an estimated 125 infested trees on about 200 acres.

Two Ocean Lake Unit: 200 acres, 250 infested trees.

The Two Ocean Lake unit is actually made up of three small centers of infestation on the north side of Two Ocean Lake. The area has not had a land survey so townships and ranges cannot be used for location. However, these centers are easily found. One spot at the northwest corner of the lake is visible from the lakeshore and contains about 50 infested trees. A small center of about 20 infested trees borders a stream running into the lake toward the eastern end and is about 10 chains back from the edge of the timber. The largest group is located

on the hill between the east drainage running into the lake and the outlet. This center contains approximately 180 infested trees.

An area marked "A" on the map, near the mouth of Spread Creek contained faded trees detectable from the air. The aerial observer suspected the fading was due to Commandra rust rather than bark beetles. This was confirmed.

DISCUSSION AND RECOMMENDATIONS

Grand Teton National Park is located in the midst of a very large body of lodgepole pine type covering several National Forests and a considerable acreage in Yellowstone National Park. This general area has been subjected to several serious outbreaks of mountain pine beetle. This large body of lodgepole pine is still considered to be susceptible to mountain pine beetle attacks. For this reason it is extremely important that all interested parties be alert to detect all serious buildups of mountain pine beetle while they are small in size. The detection work by the various land managing agencies, supplemented by an annual aerial survey conducted by the Division of Forest Insect Research, Intermountain Station, has uncovered a number of centers of mountain pine beetle buildups on the Teton National Forest and Grand Teton National Park. Control work was undertaken this summer against two of the centers detected the fall of 1956 on the Park. Known areas of infestation were surveyed late in 1957 by ground crews. All centers of infestation showed definite epidemic tendencies and therefore constitute a threat to the lodgepole pine forest.

Treatment of all centers of infestation is indicated with the objective of possible prevention of a large-scale outbreak. The treating methods and techniques employed this summer (spraying infested trees with ethylene dibromide emulsion) are effective. Using an estimate of \$8.00 per tree (actual cost this year was \$7.74) it would cost approximately \$7,080 to treat the estimated 885 infested trees. Technical assistance on any control work undertaken is available through the Division of Forest Insect Research, Intermountain Station.

LEGEND

S - Signal Mountain Unit 1,370 acres - 200 infested trees.

ES - East Signal Mountain Unit 390 acres - 260 infested trees.

R - Snake River Unit 800 acres - 50 infested trees.

P - Pacific Creek Unit 200 acres - 125 infested trees.

O - Two Ocean Lake Unit 200 acres - 250 infested trees.

A)

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B)

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Infested areas on adjoining Teton National Forest.

C)

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D)



